30576
P/021/61/000/009/001/001
D249/D305

Magnetic element for ...

detuning of the resonant circuit; 5) the reason for oscillations in the output volatage is over compensation; one of the reasons for unstable oper- ation is non-linearity of the magnetic circuits. In selecting the optimum parameters for an unloaded phase shifter, X_d is usually assumed and R is determined from the relation

$$R_{opt} = X_{max} \sqrt{\alpha} - R_d \qquad (19)$$

where $\alpha = X_{min}/X_{max}$. The range of phase angle control is the given by

$$\angle\theta = 2 \left[\tan^{-1} \frac{1}{\sqrt{\alpha}} - \sqrt{\alpha} \right] \qquad (20)$$

A practical phase shifting circuit developed and constructed by the author using normal transformer steel, internal feedback and two control windings is shown and the experimental characteristics obtained, are also given. The response time of this circuit as determined by applying unit step func- tion technique is 0.06 sec. for $\angle\theta$ to reach 95% of $\angle\theta$ max. There are 12

Card 4/6

30576
P/021/61/000/009/001/001
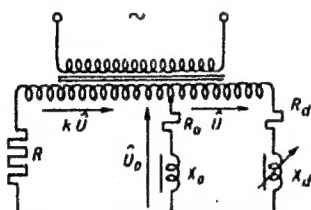D249/D305

Magnetic element for ...

figures and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: R.Lee, Electronic Transformers and Circuits.

ASSOCIATION: Politechnika Warszawska, Katedra napędu elektrycznego (Warsaw Polytechnic, Department of Electric Power)

Fig. 3

PE-557-3

Rys. 3. Schemat ideowy przesuwnika mostkowego

Legend to Fig. 3:

Schematic circuit diagram of phase shifter

Card 5/6

Magnetic element for ...

30576
P/021/61/000/009/001/001
D249/D305

Rys. 4. Wykres kolowy:
przesuwnika
nie obciążonego; — — —
— przesuwnika obciążone-
go
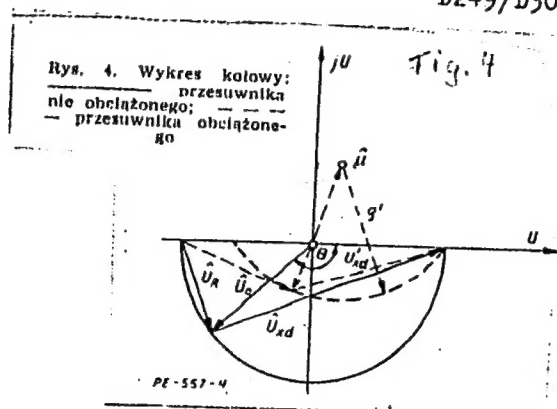
Fig. 4

Legend to Fig. 4:   Circle diagram for phase shifter

Card 6/6

TUNIA, Henryk, dr.,inz.

New electronic circuits for the impulse control of thyratrone ignition. Przegl elektrotechn 37 no.12:506-508 '61.

1. Politechnika Warszawaka.

TUNIA, Henryk, dr., inz.

Magnetic element for pulse control of thyratrons. Przegl elektro-
techn 37 no.9:381-385 '61.

1. Katedra Napedu Elektrycznego, Politechnika Warszawska.

(Pulse modulation)

TUNIA, Henryk, dr., inz.

New electronic circuits for pulse control of thyratron ignition.
Przegl elektrotechn 37 no.12:506-508 '61.

1. Politechnika Warszawska.

(Electronic circuits)

TUNICKI, N. N.

"Diffusion Processes under Conditions of Natural Turbulence"

KONDAKOV, V., inzh.; TUNIK, A., inzh.

Determination and maintenance of the optimum operating regime of
suction dredging equipment. Rech. transp. 23 no.11:38 N '64.

(MIRA 18:3)

DOBRYNINA, L.D.; PETRICHENKO, A.M.; TUNIK, A.A.

Investigating certain properties of high-strength cast iron
with spheroidal graphite. Izv. vys. ucheb. zav.; chern. met.
8 no.10:129-132 '65.
                                              (MIRA 18:9)

1. Khar'kovskiy avtomobil'no-dorozhnyy institut.

27728
S/128/61/000/010/002/003
A004/A127

1.1500

AUTHOR: Tunik, A. A.

TITLE: The effect of some technological factors on the mechanical properties
            of casting produced by the investment pattern method.

PERIODICAL: Liteynoye proizvodstvo, no. 10, 1961, 32-35

TEXT: The purpose of the author's investigations, carried out in coopera-
tion with S. F. Dolina and A. S. Udodova, was to make a comparative study of the
mechanical properties of steel castings produced by the investment pattern
method from the grades 20Л (20L), 30Л (30L), 45Л (45L) and 45ХЛ (45KhL). The
steel was melted in a 100-kg h-f electric furnace with acid lining. Prior to
pouring, the molds were heated to 600°C, the pouring temperature being 1,540°C.
Moreover, specimens 30 mm in cross section of the hot-rolled steel grades 20, 45
and 45Kh were tested. The chemical composition of the cast iron heats and the
heat-treatment conditions are presented in tables. Each type of specimen was
tested as to tensile strength, notch toughness, bending and impact fatigue. A
table shows the comparative test data of cast steel and hot rolled steel speci-
mens. It reveals that both cast and rolled steel specimens have nearly equal

Card 1/3

The effect of some technological factors ...

tensile and yield strength, while the cast steel possesses a lower ductility. The plastic properties of cast steel can be improved by heat treatment; the best results are obtained after hardening with high tempering. The hardenability of cast and rolled steels differs only insignificantly. Test data presented in a number of graphs reveal that the level of mechanical properties of the castings considerably exceeds the requirements as to ГОСТ (GOST). The cast steel speci-mens had a relative elongation which was by some 20-30% lower than that of the rolled steel specimens, while the transverse compressive strength of the cast steel was 25-35% lower than rolled steel. Investigations of the effect of the pouring temperature on the mechanical properties of the 45ЛК (45LK) grade cast steel showed that an increased pouring temperature somewhat lowers the strength and yield limits and the relative elongation, while the transverse compressive strength is only insignificantly reduced if the pouring temperature is increased up to 1,620°C; at higher pouring temperatures this reduction is more pronounced. Also the notch toughness decreases with an increase in pouring temperature. A systematic investigation of the different kinds of fracture revealed that the maximum ductile properties of cast steel are obtained with a mat fibrous fracture. An acicular orientation with mat fractures reduces the ductile properties of the castings, although the ductility is still satisfactory. Also the cross-section

Card 2/3

dimensions of the castings affect their properties since they determine the cool-
ing rate during crystallization. The author, moreover, presents data in the form
of a table which show that a reduction in the mold heating temperature, an
increase in the pouring temperature and a decrease of the specimen cross-section
area will result in brittle, lustrous crystal fractures of acicular structure.
The nature of fracture of steel smelted in acid furnaces can be positively
influenced by adding 1.5 - 2.0% limestone as slag-forming agent after the metal
has been molten and the first slag removed. In his conclusion the author points
out that, if the necessary conditions are observed, investment steel castings are
not inferior to rolled steel parts. The ductile properties of the former are
lower than the latter on specimens taken in longitudinal direction. However,
rolled steel specimens cut out in transverse direction possess a lower ductility,
while castings are characterized by isotropic properties. It follows that
castings produced by the investment pattern method in most cases are equivalent
to rolled steel concerning their strength characteristics. There are 5 figures
and 4 tables.

Card 3/3

BAKAKIN, G.N., inzh.; LYUBARSKIY, I.M., kand. tekhn. nauk;
    LYUBCHENKO, A.P., kand. tekhn. nauk; MOZHAROV, M.V., inzh.;
    TUNIK, A.A., inzh.

Comparative laboratory wearing tests of cast irons with globular
and flaky graphite. Vest. mashinostr. 44 no.6:62-64 Je '64.
                                            (MIRA 17:8)

TUNIK, A.A.; BEGUN, B.Ye.; DOBRYNINA, L.D.; SHCHERBINA, V.P.; LYUBARSKIY, I.M.

Kinetics of the crystallization and cooling of a large crankshaft
casting. Lit. proizv. no.6:40-41 Je '62.   (MIRA 15:6)
              (Iron founding) (Cranks and crankshafts)

S/128/60/000/010/007/016/XX
A033/A133

AUTHORS: Kvasman, M. G.; Tunik, A. A., and Begun, B. Ye.

TITLE: Casting large diesel engine crankshafts

PERIODICAL: Liteynoye proizvodstvo, no. 10, 1960, 13 - 15

TEXT: The authors report on the manufacture of cast iron crankshafts
for the Д100 (D 100) diesel locomotive engine, which has 10 connecting rod
journals and 12 crank journals. All journals are hollow and the crankshafts
are fabricated according to a technology described by B. Ye. Begun et al.
[Ref. 1: "Tekhnologiya transportnogo mashinostroyeniya", no. 2, 1957], M.
G. Kvasman et al. [Ref. 2: "Liteynoye proizvodstvo", no. 6, 1959] and M. R.
Rotenberg, V. I. Soldatenko. [Ref. 3: "Liteynoye proizvodstvo, no. 6, 1959].
To eliminate some essential technological deficiencies of the cast crank-
shafts, of which the most important one is the origination of black spots
as a result of non-metallic sulfide inclusions, investigations were carried
out in which A. A. Novik, L. D. Dobrynina, S. F. Krivtsov and V. I. Korsa-
kov participated. To increase the productivity in big-lot production two
crankshafts were cast in one flask of 5,360 x 1,100 x 400 mm, instead of

Card 1/3

Casting large diesel engine crankshafts

S/128/60/000/010/007/016/XX
A033/A133

one crankshaft in 5,360 x 900 x 400 mm flasks. The molds were rammed with
the 296M sandslinger. These measures resulted in a cut in labor consump-
tion of molding and assembling operations of 25% and a saving of 1.5 m³ of
molding sand per crankshaft. In order to eliminate the cutting off of
shrinkage heads narrowed diaphragms and easily removable shrinkage heads
were used. The diaphragms were roasted in a reducing atmosphere in metal
containers. The cast iron is smelted in a 5-ton acid electric furnace with
a solid charge consisting of 30 - 50% ПВК(PVK) forge iron, 20 - 30% LK3
and LK4 - ГОСТ (GOST) 4832-58 foundry iron, 15 - 20% carbon steel scrap and
up to 40% shaft waste. The mechanical properties of the crankshafts should
be as follows: $\sigma_{end} \geqslant 45$ kg/mm², $\delta \geqslant 1.0\%$, and HB in the range of 207 - 302.
Up to 30% ferrite and 8% cementite are allowed in the microstructure. With-
out any special heat treatment and after the treatment with magnesium and
modification with 75% ferro-silicon the cast iron should contain: 2.8 -
3.2% C; 2.2 - 2.6% Si; 5.3 - 5.7% (C+Si); 0.5 - 0.9% Mn; $\leq 0.10\%$ P;
$\leq 0.025\%$ S; $\leq 0.25\%$ O_2; $\leq 0.4\%$ N_2 and 0.025 - 0.1% Mg. An increase in the
pouring temperature to 1,370°C and higher made the non-metallic inclusions,
causing the origination of black spots, float up to and concentrate near

Card 2/3

Casting large diesel engine crankshafts

S/128/60/000/010/007/016/XX
A033/A133

the surface, where they could be eliminated during the roughing operation. Magnesium is added in quantities of 0.55% (28 kg per 5 tons of cast iron), while the cast iron is modified with 1.1 - 1.3% (of the weight of the liquid metal) of 75% ferro-silicon. The authors comment upon the optimum modification technology and point out that the results of the mechanical processing and investigations of mechanical properties have shown that the addition of gray cast iron and the recasting of the cast iron caused an increased origination of black spots. When the cast iron was treated with cryolite (of the grades K1 and K2 TsMTU 952-41) which was added together with the magnesium, the black spots were eliminated and a stable level of mechanical properties was obtained. There are 8 figures and 6 Soviet-bloc references.

Card 3/3

KVASMAN, M.G.; TUNIK, A.A.; BEGUN, B.Ye.

Casting large diesel engines crankshafts. Lit. proizv. no.10:13-15
O '60.   (MIRA 13:10)
   (Cranks and crankshafts)   (Founding)

TUNIK, A.A. (Kiyev)

Experimental study of the invariancy of optimalizing pulse
systems without direct measuring links of the disturbances.
Avtomatyka 7 no.6:55-59 '62.   (MIRA 16:1)
                          (Automatic control)

TUNIK, A.A. (Kiyev)

Automatic optimization of the operating mode of dredging machines.
Avtomatyka 8 no.5:80-83   '63.   (MIRA 17:1)

ACCESSION NR: AP4013545   S/0102/64/000/001/0008/0018

AUTHOR: Tunik, A. A. (Kiev)

TITLE: Comparative investigation of two classes of sampled-data optimized control systems

SOURCE: Avtomaty*ka, no. 1, 1964, 8-18

TOPIC TAGS: automatic control, optimized automatic control, sampled data optimized control, relay optimized control, synchronous detector optimized control

ABSTRACT: Transient processes in two types of sampled-data optimum systems were investigated: (1) A relay system with pulse correction and (2) A proportional system with a synchronous detector. Ramp-type and step-type disturbances at the input of the optimum characteristic nonlinear section were considered. Approximations of the optimization characteristic by a parabola and by straight-

Card 1/2

ACCESSION NR: AP4013545

line segments were tried. The transients were simulated on a "Kiev" digital computer. It was found that the both systems are approximately equal as far as the dying-out time of transients is concerned. The first system approaches the extremum position more smoothly than the second system which is more flexible in its adjustments. Under ramp-disturbance conditions, the second system has a better stability margin than the first. This latter fact becomes particularly pronounced if the parabolic approximation is used. Orig. art. has: 10 figures and 36 formulas.

ASSOCIATION: none

SUBMITTED: 07Jun63   DATE ACQ: 14Feb64   ENCL: 00

SUB CODE: CG, IE   NO REF SOV: 007   OTHER: 002

Card 2/2

TUNIK, A.A. (Kiyev)

Comparative study of two classes of sampled-data optimalizing
control systems. Avtomatyka 9 no.1:8-18 '64.

(MIRA 17:3)

TUNIK, A.A.; VERESHCHAGIN, L.A.

How to realize summation with averaging (formulation of the problem).
Avtomatyka 9 no.6:72-77 '64.   (MIRA 18:1)

L 40090-66   EWT(d)/EPF(n)_2/EWP(1) P_u-4/P_q-4/P_g-4/P_{ae}-2/P_u-4/P_k-4/FL-4
IJP(c)

AUTHOR: Tunik, A. A. (Kiev)

TITLE: Determining the stability of a sampled-data extremal system with
modulation by analysing parametric oscillations

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 1, 1965, 131-142

TOPIC TAGS: automatic control, automatic extremum search, automatic control

ABSTRACT: A sampled-data extremal difference-type automatic-control system
with various equivalent circuits replacing the plant is considered; its block
diagram is given and functions explained in Enclosure 1. The system stability is
analyzed in the area in which periodic modal extremum amplitude and

Card 1/2

ACCESSION NR: AP5007259

been modeled in the present article and the equations and conditions
of the sampled data extremal system are determined. Orig. art. has 10 figures
and 20 formulas

ASSOCIATION: none

SUBMITTED: 22Jan64   ENCL: 01   SUB CODE: DP, IE

NO REF SOV: 008   OTHER 000

Card 2/3

TUNIK, A.A. (Ktyev)

Calculation of fluctuation error in sampled-data optimalizing
control systems with synchronous detectors. Avtomatyka 10
no.2:29-38 '65. (MIRA 18:6)

TUNIK, A.A., inzh.; KLIMKOVSKIY, S.F., inzh.

Aluminum alloys for heavy-loaded bearings. Mashinostroenie no.
2:98-101 Mr- Ap '64.   (MIRA 17:5)

44058

S/102/62/000/006/005/005
D201/D308

AUTHOR: Tunik, A.A. (Kiev)

TITLE: Experimental investigation of invariance of sampled-
             data extremal systems without direct determination
             of disturbance effects

PERIODICAL: Avtomatyka, no. 6, 1962, 55-59

TEXT: The author discusses the results of experimental
analysis of the invariance of complex sampled-data systems, in which
the condition of invariance was obtained by the increase of the
astatism of the system. This increase corresponds to an additional
loop which memorizes k different values of the input signal. The
greater the k, the greater the degree of astatism of the system.
Hence it is possible to increase the accuracy of the external system
by introducing intermediate correction loops for the disturbances
λ and λ', which shift the extremum coordinates. Since, in real
systems of extremal control, the drift of the extremum is slow vary-
ing and its acceleration is small, the invariance conditions were

Card 1/2

Experimental investigation ...

S/102/62/000/006/005/005
D201/D308

investigated, assuming linear disturbances λ, from the analysis
of a single loop extremal system by MH-7 (MN-7) electronic analog.
The performance of a single loop extremum system was analyzed first
for a disturbance changing at a linear rate of 5 and 10 V/period.
The second rate of change resulted in instability. The same analy-
sis for a multi-loop system, with a 10 V/period rate of change of
disturbance, has shown that, after the end of transient, the system
follows the extremum without error and is completely stable. The
results can constitute the basis of design of more accurate extre-
mum control systems. There are 4 figures.

SUBMITTED: June 15, 1962

Card 2/2

18(5)

SOV/128-59-6-2/25

AUTHOR: Kvasman, M.G., Zav'yalov, A.M. and Tunik, A.A., Engineers

TITLE: Some Factors Affecting the Quality of Cast Iron Crankshafts

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 6, pp 4-5 (USSR)

ABSTRACT: Pouring of crankshafts for diesel engines is a complicated process. In the following, several test results obtained by the working group of a metallurgical plant during 1958 are published. They were made to find the reasons for damage to the individual components of the crankshafts in connection with their design and their chemical properties. These defects or damages are: blisters and porous areas, the appearance of which is linked to their heat treatments. Diesel engines of the type 2 D 100 have two crankshafts: the lower one with a length of 3.860 mm (weight 1,740 kg), and the upper one with a length of 3.750 mm (weight 1.490 kg). (a drawing of the crankshaft is given on page 3 of this perio-

Card 1/3

Some Factors Affecting the Quality of Cast Iron Crankshafts

dical). It is a crankshaft made from alloyed cast iron
(alloyed with Mo, Ni, Cr, etc.). (At this time the
plant is carrying out experiments to produce such
crankshafts from magnesium type cast iron). The defects
appearing have been observed at this plant for over a
year. From one table it is clear that not one single
bearing area of the connecting rods big end bearings
has been without defect. The number and the location
of the defects differ at the different big end bearings
To demonstrate that not the temperature of pouring, but
the chemical properties of the casting material have
been the reasons for such defects, a crankshaft had
been produced from sulpherous cast iron of the type
S Ch 21-40. Neither blisters nor porous areas had been
detected on this casting. In 1957, the observations
showed that the number of the defects increased with
the increase of the C and Si (especially C 3 Si) con-
tents of the material.One table lists the results of
the observations during 1957 and 1958 for comparison.

Card 2/3

SOV/128-59-6-2/25

Some Factors Affecting the Quality of Cast Iron Crankshafts

There are 3 tables, 1 diagram and 3 graphs.

Card 3/3

TUNIK, A.A.

Work of Indian scientists in the field of automatic control (brief report on a conference on automatic control and computer techniques held at the Bihar Institute of Technology in Dhanbad). Avtomatyka 8 no.4:78-80 '63.

(MIRA 16:10)

TUNIK, A.V.; VASIL'YEVA, T.A.; VASIL'YEV, A.A.; GERSHMAN, M.B.

Use of polyvinyl alcohol for the preparation of membranes. Zhur. prikl.
khim. 38 no.7:1636-1638 Jl '65.   (MIRA 18:7)

ACC NR: AR7000901   SOURCE CODE: UR/0058/66/000/009/H061/H061

AUTHOR: Tunik, A. Ye.; Kludzin, V. V.

TITLE: Possibility of amplifying ultrasonic waves in nonlinear media

SOURCE: Ref. zh. Fizika, Abs. 9Zh444

REF SOURCE: Tr. Leningr. in-t aviats. priborostr., vyp. 45, 1965, 3-9

TOPIC TAGS: ultrasonic wave, excitation energy, ultrasonic wave amplification, wave amplification

ABSTRACT: The possibility of parametric amplifying of US waves in media with a strongly expressed theoretically investigated nonlinearity. The parametric amplification of a useful US signal occurs at the expense of periodic changes in the hardness of the medium at US pumping frequency. It is stated that an experimental investigation of amplification presents difficulties because of the complexity of obtaining sufficiently high pumping signal amplitudes. A bibliography of 8 titles is included. [Translation of abstract]   [DW]

SUB CODE: 20/
Card 1/1

TSVETKOVA, Ye.A.; KOTOVA, N.G.; TUNIK, B.A.; VENGRINOVICH, L.S.;
MOCHALOVA, R.M.

[Catalogue of publications received between July 1 and
December 31 1961] Katalog publikatsii, postupivshikh s 1
iiulia po 31 dekabria 1961 g.   Moskva, No.6.[Longitudes and
latitudes. Seismology. Gravimetry. General section] Dolgoty
i shiroty. Seismologiia. Gravimetriia.   14 p. Obshchii razdel.
7 p. [Rockets and satellites]Rakety i sputniki.   56 p, II.
[Meteorology. XIV. Nuclear radiation] Meteorologiia. XIV. Iader-
naia radiatsiia. 22 p. III. [Geomagnetism. IV. Aurora. V. Iono-
sphere. VI. Solar activity. VII. Cosmic rays] Geomagnetizm. IV.Po-
liarnye siianiia. V.Ionosfera. VI.Solnechnaia aktivnost'.VII.Kosmi-
cheskie luchi. 62 p. IX.[Glaciology. X.Oceanography] Glatsiologiia.
X. Okeanografiia.   22 p.   (MIRA 16:6)

1. Mirovoy tsentr dannykh MGG B. 2. Nauchno-issledovatel'skiy
institut aeroklimatologii (for all).
        (Bibliography--Geophysics)

TSVETKOVA, Ye.A.; KOTOVA, N.G.; TUNIK, B.A.; VENGRINOVICH, L.S.;
       NIKOLAYEVA, A.A.

[Catalogue of publications received by the World Data Center B
between January and June 1962] Katalog publikatsii, postupiv-
shikh v MTsD B s ianvaria po iiun' 1962 g. Moskva, No.7. [General
section] Obshchii razdel 5 p. II [Meteorology. XIV. Nuclear
radiation] Meteorologiia. XIV. IAdernaia radiatsiia. 18 p.
                                                     (MIRA 16:6)

1. Mirovoy tsentr dannykh MGG-B.
       (Bibliography--Geophysics)

GORBUNOV, N.I.; DZYADEVICH, G.S.; TUNIK, B.M.

Determining nonsilicate amorphous and crystalline sesquioxides in
soils and clays. Pochvovedenie no.11:103-111 N '61. (MIRA 14:12)

1. Pochvennyy institut imeni V.V.Dokuchayeva.
              (Soils--Analysis) (Clay--Analysis)

TUNIK, G.S.

Case of acute hematogenous osteomyelitis treated by subperiosteal
injection of penicillin. Vest. khir. 71 no.2:58-59 1951. (CLML 20:8)

PROCESSES AND PROPERTIES INDEX

Producing abrasive tools. R. Ya. Tunik, I. G. Pass, V. N. Lyubomudrov, and V. G. Voano. U.S.S.R. 64,916, June 1945 (Dec. 30, 1943); abstracted in *Bibliog. Ind. Diamond Applications*, 7 [Dec.] 665 (1950).—In the production of abrasive tools with a ceramic bond, part of the abrasive grains are replaced with granular material weakly attached to the abrasive grains and bond element. In use, this material breaks or chips off. By this means there is reduced consumption of abrasive material, since puff does not participate in the work done and chips off at the blunting stage. This abrasive material is replaceable by other cheaper and nondeficient material, e.g., chrome iron ore.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

111-58-7-12/27

AUTHOR: Tunik, Ye.M., Head of the Electric Communications Department

TITLE: We Study the Concrete Economics of Communications (Izuchayem
              konkretnuyu ekonomiku svyazi)

PERIODICAL: Vestnik svyazi, 1958, Nr 7, p 19 (USSR)

ABSTRACT: The article describes a seminar to study the concrete econo-
              mics of communications, organized by the Poltava Oblast Com-
              munications Administration. The author lists the various
              subjects studied.

ASSOCIATION: Poltavskoye oblastnoye upravleniye svyazi (Poltava Oblast
              Communications Administration.

              1. Communications—Economic aspects

Card 1/1

TUNIK, Ye.M.

We study the applied economics of communications. Vest. sviazi 18 no.7:19 Jl '58.   (MIRA 11:9)

1.Nachal'nik otdela elektrosvyazi Poltavskogo oblastnogo upravleniya svyazi.

(Communication and traffic)

TUNIK, Ye.M.

Methods of checking the operations of communications enterprises.
Vest.sviazi 16 no.11:25 N'56.   (MIRA 10:1)

1. Nachal'nik otdela elektrosvyazi Poltavskogo oblastnogo uprav-
leniya svyazi.
(Telecommunication)

TUNIK, Ye.M.

Training linemen by correspondence.   Vest.sviazi 14 no.3:29-30 Mr '54.
                                                    (MLRA 7:5)

1. Nachal'nik telefonno--telegrafnogo otdela Poltavskogo oblastnogo
upravleniya svyazi.
  (Correspondence schools and courses) (Telecommunication--Employees)

PAVLOV, V.A., kandidat tekhnicheskikh nauk, dotsent; TUNIMANOV, A.Z., inzhener; ANTONOV, A.K., inzhener; GUSHCHINA, L.M., inzhener; RIVKIN, S.S., doktor tekhnicheskikh nauk; SAYDOV, P.I., kandidat tekhnicheskikh nauk dotsent; PEL'POR, D.S., doktor tekhnicheskikh nauk, professor; RYABOV, B.L., doktor tekhnicheskikh nauk, professor; TIKHMENEV, S.S., doktor tekhnicheskikh nauk. professor; FRIDLENDER, G.O., doktor tekhnicheskikh nauk, professor; CHISTYAKOV, N.I., doktor tekhnicheskikh nauk, professor.

Can V.A. Pavlov's book "Aircraft gyroscope instruments" be recommended for use as a textbook? Priborostroenie no.1:29-31 Ja '57.

(MIRA 10:4)

1. Chlen pravleniya Leningradskogo otdeleniya nauchnogo inzhenerno-tekhnicheskogo obshchestva priborostroitel'noy promyshlennosti (for Tunimanov). 2. Chlen pravleniya Vsesoyuznogo nauchnogo inzhenerno-tekhnicheskogo obshchestva priborostroitel'noy promyshlennosti (for Gushchina) 3. Moskovskoye Vyssheye tekhnicheskoye uchilishche imeni Baumana (for Pel'por, Tikhmenev). 4. Moskovskiy aviatsionnyy institut imeni Serge Ordzhonikidse (for Ryabov). 5. Voyenno-vozdushnaya inzhenernaya akademiya imeni N.Ye. Zhukovskogo (for Chistyakov)

(Gyroscope)

25541

S/123/61/000/011/027/034
A004/A101

/3.2590

AUTHORS: Tunimanov, A. Z.; Starikov, I. Ya.

TITLE: Gyroscopic inclinometer

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 11, 1961, 29, abstract
              11D188 (V sb. "1-ya Mezhvuz. nauchno-tekhn. konferensiya po probl.
              sovrem. giroskopii". Leningrad, 1960, 142-156)

TEXT: The authors report on the fabrication of a pilot model of the ИГ-1
(IG-1) gyroscopic inclinometer (of 75 mm diameter) by the "Geologorazvedka" Plant
in cooperation with the Leningradskiy institut aviatsionnogo priborostroyeniya
(Leningrad Institute of Aviation Instruments). The inclinometer is intended for
use in the drilling technology to determine the angle and azimuth of inclination
of bore holes and ensures: the direct reading of the distortion parameters of
bore holes, of the zenith angle and the inclination azimuth; comparatively small
dimensions of the gyroscopic units for the given accuracy; continuous recording
depicting on a tape the bore hole cross section with the given curvature at any
depth. IG-1 consists of two gyroscopic systems: 1) the gyroscopic measuring
device of the bore hole distortion possessing the property of fixing the revolu-

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Gyroscopic inlinometer

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S/123/61/000/011/027/034
A004/A101

tion of the gyroscope along the line of intersection of the horizon plane and
bore hole inclination. This device is a three-degree gyroscope with azimuthal
and zenith correction actuated by the mercury levels. The signals are read out
from corresponding potentiometers; 2) the gyroscopic path indicator keeping the
axis of the proper revolution of the gyroscope in a definite direction relative
to the countries of the world. The authors describe the operation of the gyro-
scope, derive motion equations of each system, and present the results of labora-
tory tests of the device. There are 5 figures.

N. Rogov

[Abstracter's note: Complete translation]

Card 2/2

89250

s/048/61/025/001/016/031
B029/B060

24.6720

AUTHORS: Berlovich, E. Ye., Larionov, O. V., Tunimanova, E. N.,
Khay, D. M.

TITLE: Study of the decay schemes of Gd^{146}, Gd^{147}, and Gd^{149} by a
beta - gamma coincidence spectrometer

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25,
no. 1, 1961, 90-97

TEXT: A study has been made of the cascade properties of transitions in
gadolinium isotopes by the method of coincidences with a view to defining
the details of the decay schemes of these isotopes. N. M. Anton'yeva,
A. A. Bashilov et al. (Refs. 2,3,4), in their papers submitted to the 8th
All-Union Conference on Nuclear Spectroscopy of 1958, had offered a
thorough study of the spectra of conversion electrons of Gd^{146}, Gd^{147}, and
Gd^{149}. B. S. Dzhelepov, V. A. Sergiyenko et al. (Refs. 5,6) studied the
coincidences between the conversion electrons of these isotopes in 1959.
Fig. 2 shows the block diagram of the coincidence spectrometer,

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Study of the decay schemes of...

consisting of two branches, used here. The two branches represent a
sector-type magnet spectrometer with improved focusing and a scintillation
spectrometer with a NaI crystal. The recorders were two time photo-
multipliers of the type ФЭУ-14 (FEU-14) after G. S. Vil'dgrube.
Measurement results: Gd^{146}: Fig. 3 shows the curve of the coincidences
of electrons of the K line of transition (114.8 + 115.5)kev with the
gamma rays of the gadolinium fraction. The measurements took place 100
days after the separation of the fraction from the target irradiated with
660-Mev protons. Fig. 4 shows the analogous curve for the K line of the
155-kev transition. Two incompletely resolved coincidence peaks are
observed; peak 1 characterizes the coincidences $K114.8 - \gamma115.5$ and
$115.5 - \gamma114.8$; peak 2 refers to $K(114.8 + 115.5) - \gamma 155$. The results
found, while confirming the cascade property of all of the three
transitions, do not, however, add any new information to the results given
by B. S. Dzhelepov and V. A. Sergiyenko (Ref. 5). Still, they may be
regarded as a good confirmation of the hitherto assumed decay scheme of
Gd^{146}. Fig. 5 shows the peaks of the coincidences of the 229-kev
electrons with the gamma rays (scintillation branch), and Fig. 6 shows the

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Study of the decay scheme of...

peaks of the coincidences of the 396 kev-K-line electrons with the same
gamma rays. The K229 electrons coincide with the 396-kev gamma rays.
The peak of coincidences is, however, widened by an admixture of 370-kev
gamma quanta. In the spectrum of coincidences there are still further,
although not sharp, maxima, which correspond to the 560 ± 20, and
760 ± 25-kev energies, as well as a poorly marked coincidence peak in the
900-kev range. Weak maxima are also observed with 396-kev electrons,
namely, in the 480 ± 30 and 560 ± 30-kev energy range. Figs. 7 and 8 show the
coincidence curves of conversion K electrons of the 149.8 and 346-kev
transitions with the gamma rays recorded in the scintillation branch.
K 149.8 electrons provide coincidences with the 346 and 530 ± 20-kev gamma
quanta. K 346 electrons provide coincidences with 150 and 298-kev gamma
quanta. According to the results obtained, the 298-kev transition in the
nucleus of $_{63}Eu^{149}$ is surely to be found in the 346- and 149.8-kev gamma
cascade. This transition lies above the isomeric level and proceeds from
the 795-kev level. Spin and parity $9/2^-$ or $11/2^-$ must be ascribed to this
level. The intensities of 346 and 298-kev transitions are almost
equally high. The excitation of the 497-kev level by electron capture is,

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Study of the decay schemes of...

in fact, more probable than the excitation of the 795-kev level. The
other results found regarding the coincidences are in good agreement with
the decay scheme of Gd^{149} suggested by N. M. Anton'yeva et al. (Ref. 3).
The article under consideration is the reproduction of a lecture
delivered at the 10th All-Union Conference on Nuclear Spectroscopy,
which took place in Moscow from January 19 to 27, 1960. There are 11
figures, 1 table, and 9 references: 8 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk
               SSSR (Institute of Physics and Technology imeni A. F. Ioffe,
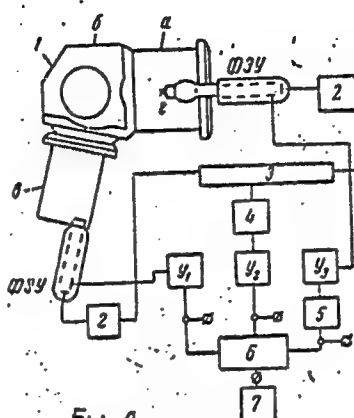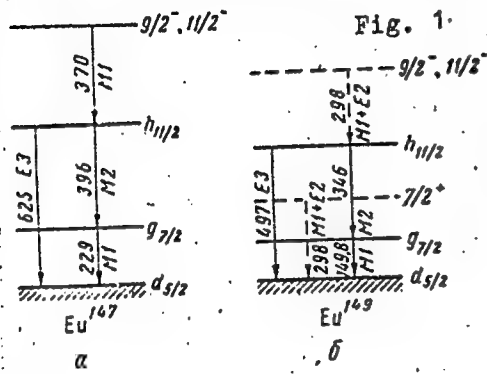   Academy of Sciences USSR)

Legend to Fig. 2: 1) magnetic spectrometer (a) source container,
(б) deflection chamber, (в) counter chamber, (г) source; 2) limiters;
3) variable delay line; 4) fast-coincidence block, (y_i) amplifier;
5) differential pulse height analyzer; 6) triple coincidence circuit;
7) counter.

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89250
S/048/61/025/001/016/031
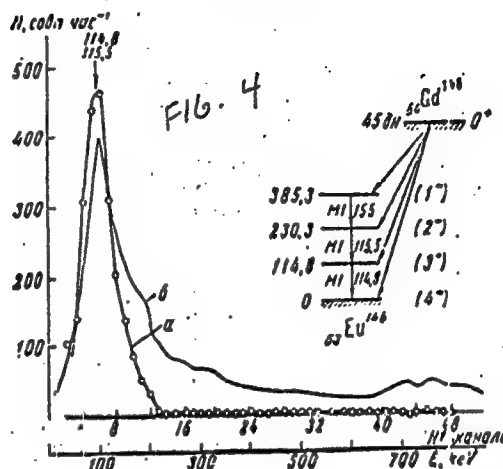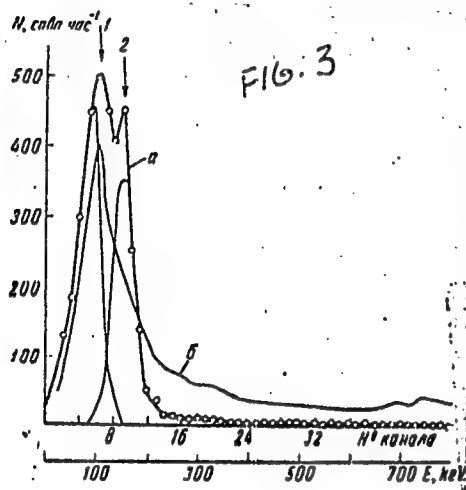B029/B060

Study of the decay schemes of...

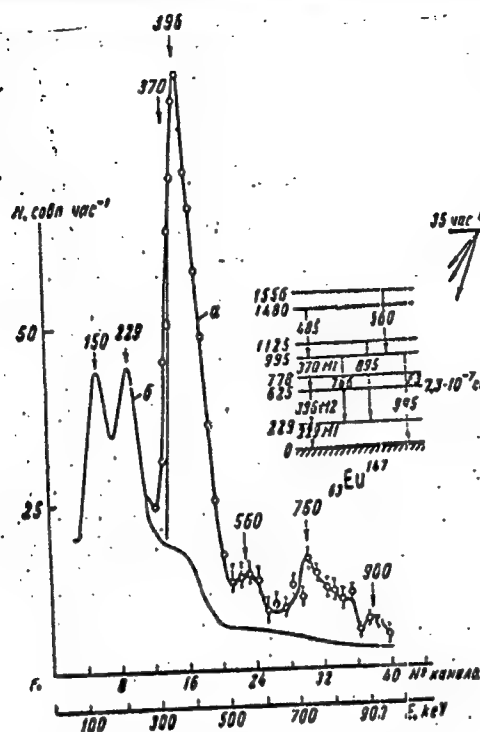Fig. 1

Fig. 2

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Study of the decay schemes of...
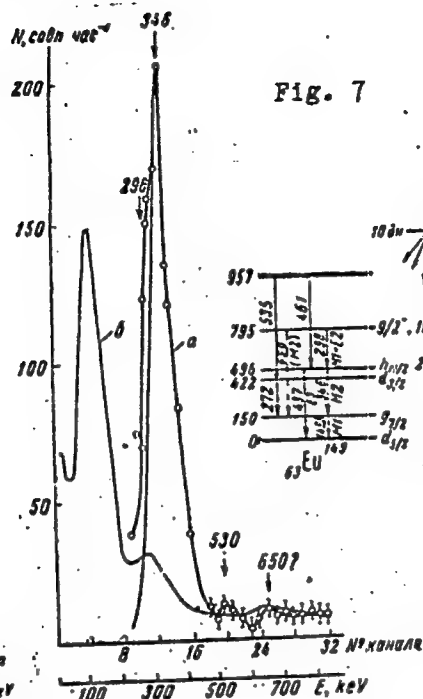

FIG. 3

FIG. 4

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Study of the decay
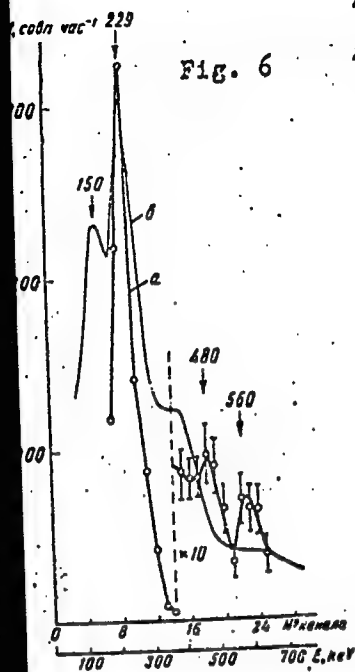
S/048/61/025/001/016/031
B029/B060

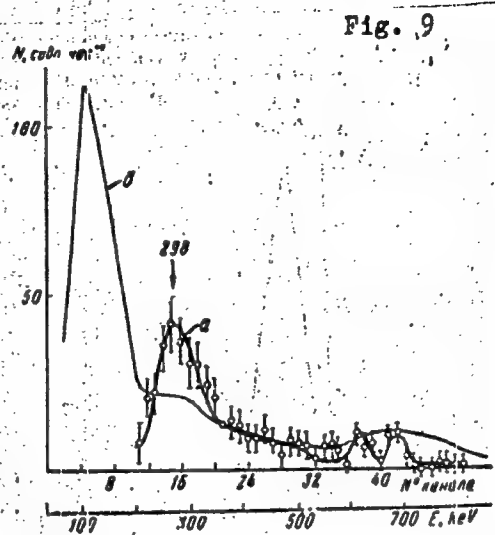Fig. 5
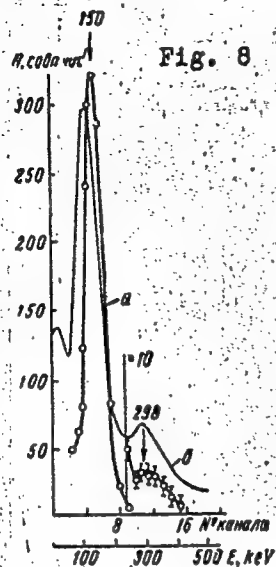
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B029/B060

Study of the decay schemes
of ...

Fig. 6

Fig. 7

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Study of the decay schemes of...

Fig. 8

Fig. 9

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L 06301-67   EWT(m)/EWP(e)   WH/GD

ACC NR: AT6027136   SOURCE CODE: UR/0000/65/000/000/0041/0045

AUTHOR: Kuznetsov, A. Ya.; Tsekhomskiy, V. A.; Tunimanova, I. V.

ORG: none

TITLE: Semiconducting silicate glasses based on titanium oxides

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Issledovaniya v oblasti khimii silikatov i okislov (Studies in the field of chemistry of silicates and oxides). Moscow, Izd-vo Nauka, 1965, 41-45

TOPIC TAGS: titanium dioxide, aluminum oxide, silicate glass, semiconducting material

ABSTRACT: Semiconducting glasses of the system $CaO-Al_2O_3-TiO_2-SiO_2$ containing various amounts of aluminum metal (added to create reducing conditions during melting at 1500 °C) were studied. ESR spectra showed that the Ti^{3+} ion constitutes the base of the reduced phase in the glasses. The latter were divided into two groups: (1) those with a variable TiO_2 content in the initial glass and (2) those with a constant TiO_2 content (20 mole %) and a variable Al_2O_3 content. In all cases, an increase in the Ti^{3+} content of the glass was found to increase the electric conductivity. The activation energy of conductivity decreases with rising TiO_2 conduct in the initial glass, then remains approximately the same as the content of Ti^{3+} ions increases in glasses containing the same total amount of titanium; the preexponential factor ($\log \rho_o$) decreases with rising content of Ti^{3+} ions. The data show that in all cases only a

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L 06307-67

ACC NR: AT6027126

small part of the total Ti^{3+} ions participate in the electric conductivity. Whereas in the initial glasses Al_2O_3 has almost no effect on the electric conductivity, in the reduced glasses the conductivity drops by 5 orders of magnitude as the Al_2O_3 content increases from 5 to 20%. The mechanisms of these phenomena are discussed. Orig. art. has: 2 figures, 3 tables and 1 formula.

SUB CODE: 11/ SUBM DATE: 28Apr64/ ORIG REF: 005/ OTH REF: 004

Card 2/2 gd

TEMNIKOV, Yu.I.; TUNIN, N.M.

Prospecting indications of rare-metal deposits of granitoids.
Razved. i okh. nedr 31 no.2:12-15 F '65.

(MIRA 18:3)

1. TSentral'naya ekspeditsiya Chitinskogo geologicheskogo upravleniya.

GOL'DIN, M.; TUNIN, G.

Establish amortization deductions correctly. Fin. SSSR 21 no.10:
62-64 O '60.   (MIRA 13:10)

               (Moscow—Amortization)

TUNIN, M.S.; SHAKHPARONOV, M.I.

Hyperacoustic and ultra-acoustic properties of pyridine-benzene
solutions. Zhur.fiz.khim. 35 no.12:2783-2784 D '61. (MIRA 14:12)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
          (Benzene)   (Pyridine)
                    (Ultrasonic testing)

SHAKHPARONOV, M.I.; TUNIN, M.S.

Hypersonic properties of liquids and molecular structure.
Prim. ul'traakust. k issl. veshch. no.15:19-28 '61.

(MIRA 16:8)

(Liquids—Acoustic properties)   (Molecules)

SHAKHPARONOV, M.I.; TUNIN, M.S.; LANSHINA, L.V.; SUKHOTINA, G.G.

Hyperacoustic properties of liquids and molecular structure.
Ukr.fiz.zhur. 7 no.7:792-796 Jl '62.   (MIRA 15:12)

1. Moskovskiy universitet.
              (Sound—Speed)   (Molecules)

S/058/62/000/012/030/048
A160/A101

AUTHORS: Shakhparonov, M. I., Tunin, M. S.

TITLE: The hyperacoustic properties of liquids and the structure of
molecules

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1962, 13, abstract 12D96
(In collection: "Primeneniye ul'traakust. k issled. veshchestva".
M., no. 15, 1961, 19 - 28)

TEXT: To investigate the hyperacoustic properties of liquids, a study was
carried out of the fine structure of Rayleigh's scattering lines in liquid pyri-
dine, thiophene, furan, quinoline, naphthalene, and also in heptane. The absorp-
tion of ultrasound was measured for these substances, except for the latter two
ones. The selction of the substances is based upon the consideration that a
strong sound absorption must take place in those liquids whose molecules are
compact, easily polarizable, and have a comparatively large number of mobile
electrons and a "rigid" framework of atomic nuclei. In all investigated sub-
stances, except for heptane, a considerable positive dispersion of the velocity
of hypersound was observed. In heptane, whose molecules do not have "rigid"
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The hyperacoustic properties of liquids and...

S/058/62/000/012/030/048
A160/A101

atomic framework, the speed of the hypersound coincided with the speed of ultra-sound within the error limits of the experiment. The relaxation times yielded by the experimental data are close to those calculated by Hertzfeld's formula. This is in conformity with the assumption that the dispersion of sound in the investigated liquids is due to intramolecular processes.

L. Filippov

[Abstracter's note: Complete translation]

Card 2/2

S/185/62/007/007/010/010
I048/I248

AUTHORS: Shakhparonov, M.I., Tunin, M.S., Lanshina, L.V., and
Sikhotina, G.G.

TITLE: The hyperacoustic properties of liquids and the
structure of molecules

PERIODICAL: Ukrains'kyy fizychnyy zhurnal, v.7, no.7,
1962, 792-796

TEXT: The dispersion of sound velocities in the hyper-.
acoustic range was studied in a number of pure liquids, using the
technique described by I.L. Fabelinskiy in UNF 63, 355, 1957. The
experiments were carried out at 20-85°C and were based on the exami-
nation of the fine structure of the 4538 Å Rayleigh line. The

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S/185/62/007/007/010/010
I048/I248

The hyperacoustic properties of...

absorption of ultrasonic waves with frequencies of 8.5 - 34.4 Mc/sec was also measured. Accuracy was ±0.3 - 1% in the ultrasonic, and ±2 - 3% in the hypersonic ranges. Dispersion of the sound velocities was observed in the following media: carbon disulfide, methylene chloride, carbon tetrachloride, thiophene, furan, benzene, styrene, and pyridine (all at 20°C), in methylene bromide (at 24°C), in quinoline (at 70°C) and in naphtalene (at 85°C); no dispersion was observed in water, methanol, acetone, toluene, heptane, and cyclohexane, at 20°C. These results show that dispersion takes place in media whose molecules have a four- or six-element "closed ring" structure, or a "double-ring" structure with a π-electron configuration: or in media containing a non-saturated radical in the molecule ; or in media made up of simple molecules

Card 2/3

S/185/62/007/007/010/010
I048/I248

The hyperacoustic properties of...

having π-electrons, i.e., in all whose molecules are compact and possess a relatively large number of mobile electrons. The mechanism of the acoustic dispersion in non-dissociated liquids is discussed, and a certain analogy is discovered between the structure of a molecule and its tendency towards fluorescence and acoustic relaxation. There are 2 tables.

ASSOCIATION: Moskovskiy universitet (The University of Moscow)

Card 3/3

31187
S/076/61/035/012/007/008
B101/B138

5.4120

AUTHORS: Tunin, M. S., and Shakhparonov, M. I.

TITLE: Investigation of the "hypersonic" and ultrasonic properties of pyridine benzene solutions

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 12, 1961, 2783 - 2784

TEXT: The authors seek to explain the molecular nature of relaxation in the $10^{10} - 10^{14}$ cps field ("hypersonic") by studying the dependencies between these processes and the composition of the solutions. The propagation of hypersonic and ultrasonic waves, viscosity, and absorption coefficient in benzene pyridine mixtures were measured at 25°C. Propagation velocity of hypersonic waves was optically determined from the fine structure of the Rayleigh line ($\lambda = 4358$ Å) of scattered light, using the method described by M. I. Shakhparonov, M. S. Tunin (Primeneniye ul'traakustiki k issledovaniyu veshchestva (Application of ultrasonics for the investigation of a substance), Trudy 9-y konferentsii, no. 14, Izd. Mosk. ped. in-ta, 1961) and L. V. Lanshina, M. I. Shakhparonov (Dokl. AN SSSR, 137, 830, 1961). Velocity of ultrasonic propagation, v_o, and absorption

Card 1/6 2

Investigation of the...

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S/076/61/035/012/007/008
B101/B138

coefficient α were measured for $f = 20.6 - 34.4$ Mcps. The meter wave generator had an output voltage of $5 \mu v - 50$ mv. The values were calculated according to the equations: $\alpha_\eta^h = 4\omega^2 \eta / 6 \varrho v_o^3$ (1), $\alpha_{\eta'}^h = \omega^2 \tau(v^2 - v_o^2)/2v_o^3(1 + \omega^2 \tau^2)$ (2); $\mu = \alpha_{\eta' max}^h \Lambda_c = \left[\pi(v - v_o)\right]/v$, where $\alpha_{\eta' max}^h$ is the maximum value of the relaxing part of the absorption coefficient, and Λ_c the length of the sound wave in the maximum of $\alpha_{\eta'}^h$. Results are shown in Figs. 1 - 4. There are 4 figures and 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: May 7, 1961

Card 2/8

L 47331-66   EWT(1)/EWT(m)/EWP(j)   RM/WW/JW

ACC NR: AR6025777   SOURCE CODE: UR/0058/66/000/004/D105/D105

AUTHOR: Tunin, M. S.

TITLE: Ratio of the intensities in components of the Rayleigh triplet for liquids whose molecules have aromatic rings

SOURCE: Ref. zh. Fizika, Abs. 4D818

REF. SOURCE: Uch. zap. Biyskiy gos. ped. in-t, vyp. 7, 1965, 135-144

TOPIC TAGS: Rayleigh scattering, aromatic compound, specific heat, sound propagation, acoustic speed

ABSTRACT: Measurements were made of the ratio $I_c/2I_{M-B}$ = A (I_c -- intensity of the central component, $2I_{M-B}$ -- sum of intensities of the displaced Mandel'shtam-Brillouin components observed in the study of the Rayleigh scattering by anisotropic molecules) for aromatic compounds characterized by low viscosity and high degree of anisotropy, and for n-heptane. Agreement between the measured values of this ratio with the theoretical ones calculated by the Landau-Placzek formula A = $(c_p - c_v)/c_v$ (c_p and c_v -- specific heats) was observed only for n-heptane. This formula contains the static values of the specific heats. Observation of the dispersions of the

Card 1/2

L 47331-66

ACC NR: AR6025777   /

speed of sound for the aromatic compounds calls for the use of dynamic values of c_p and c_v. As a result, satisfactory agreement was obtained between theory and experiment. An additional study was made of the dependence of A on the composition of a pyridine-benzene mixture, which was linear at all concentrations, i.e., the value of A depends in additive fashion on the composition of the solution. Ye. Glazunov [Translation of abstract]

SUB CODE: 20

Card 2/2 pb

TUNIN, V.
    S. SEVERIN, BULL. BIOL. MED. EXP. U.R.S.S., 1936, 1, 137-138

TUNIN, V.V. (Dnepropetrovsk)

Pressing in an elliptical washer into a hole of a circular plate.
Prykl.mekh. 6 no.1:106-109 '60.   (MIRA 13:6)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.
        (Elastic plates and shells)

SOV/124-58-10-11409

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 103 (USSR)

AUTHORS: Shevlyakov, Yu.A., Tunin, V.V.

TITLE: Twisting of Beams of Cross Section in the Shape of a Sector of a
Circle (Krucheniye sterzhney sektorial'nogo secheniya)

PERIODICAL: Nauchn. zap. Dnepropetr. un-t, 1956, Vol 45, pp 139-143

ABSTRACT: The problem of twisting in beams of circular-sector cross sec-
tion is solved by the method of conformal representation. Cases are
examined of sections in the shape of a quarter circle, a semicircle,
and a circle with radial crack. Equations are derived for the deter-
mination of maximum stresses and stiffness on twisting. The stiff-
ness values found for these cases differ only insignificantly from the
stiffness values derived by A.N. Dinnik [Prilozheniye funktsiy
Besselya k zadacham teorii uprugosti (Application of Bessel Func-
tions to Problems in Elasticity, Novocherkassk, 1913] for these
same cases by another method. The article makes no reference to a
paper of N.Kh. Arutyunyan (Prikl. matem. i mekh.), 1947, Vol 11,
Nr 5) in which a solution is found for this case by a special system
of curvilinear coordinates, and where an equation for the stiffness

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SOV/124-58-10-11409

Twisting of Beams of Cross-section in the Shape of a Sector of a Circle

of a sector of a circle is presented.

B.L. Abramyan

Card 2/2

21

29848

S/044/61/000/007/017/055
C111/C222

24.4200   1327 1191

AUTHOR: Tunin, V.V.

TITLE: On the bending of a circular plate which is charged by a load distributed uniformly over the surface of a circle

PERIODICAL: Referativnyy zhurnal, Matematika, no. 7, 1961, 33-34, abstract 7 B 137 ("Tr. Dnepropetr. s.-kh. in-ta", 1960, 8, 53-57)

TEXT: The author considers the bending of an isotropic circular thin plate of radius R which is homogeneously clamped along the whole boundary Γ_2 and which carries a load distributed uniformly over a circle of the radius $r < R$, where the center of this charged circle is not identical with the center of the plate. The author uses the well-known complex representation of the shifts and the tensions so that the problem consists of the determination of two functions $\varphi(z)$, $\psi(z)$, $z = x + iy$ which satisfy certain regularity conditions in the region of the plate, boundary conditions on Γ_2 and the conditions on the boundary Γ_1 of the charged circle. The author obtains several analytic expressions φ_1, φ_2

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Card 1/2

On the bending of a circular   ...

and ψ_1, ψ_2, respectively, of the functions φ, ψ outside the charged circle and inside it, where these expressions are constructed as follows:

$$\varphi_k(z) = \varphi^{(k)}(z) + \varphi_o(z) \, , \, \psi_k(z) = \psi^{(k)}(z) + \psi_o(z) \qquad (k = 1,2)$$

Here φ_o, ψ_o are functions being holomorphic in the whole region of the plate while the first summands are functions being holomorphic inside and outside Γ_1 and satisfying the necessary conditions on Γ_1. A method of N.I. Muskhelishvili in which integrals of the Cauchy type are used is applied for the construction of the functions. The expressions of ψ_k and γ_k as well as the bending of the plate clamped tightly along the boundary are determined. The author remarks that the problem considered by him was solved with another method in an earlier paper of S.A. Gershgorin (Prikl. matem. i mekhan., 1933, 1, no. 2).

[Abstracter's note : Complete translation.]

Card 2/2

KALUGIN, A.S., inzh.; MUKHIN, A.S., inzh.; HUSANOV, M.G., kand. geologo-
miner. nauk; TUNIN, Ya.B., inzh.

Iron ore base for the Kuznetsk and West Siberian metallurgical
combines. Izv. vys. ucheb. zav.; chern. met. no.4:3-10 Ap '58.
(MIRA 11:6)

1. Zapadno-Sibirskoye geologicheskoye upravleniye i Kuznetskiy
metallurgicheskiy kombinat.
(Siberia, Western--Iron ores)

MOGILEVSKAYA, S. Ye., kand. geol.-mineral. nauk; ONCINSKN, h.t., inzh.;
TULIN, Ya.P.; FEDRIEVICH V.V.

Some results of the study of the material composition of dust
as a source of pneumokoniosis. Bur'ba s sil. 6:81-100 '61.
(MIRA 16:1)

1. Vostochnyy nauchno-issledovatel'skiy gornorudnyy institut.

SOTNIKOVA, L.L., kand.med.nauk; TUNINA, E.L., kand.med.nauk (Khar'kov)

Significance of medical documentation in medicolegal expertise
on living persons. Vrach. delo no.11:117-119 N '61. (MIRA 14:11)
(MEDICAL JURISPRUDENCE)

AUTHORS: Tunina, M. I., Klyuchnikov, N. G.

TITLE: Interaction of iron with $SiCl_4$

TEXT: Siliconizing of steel-10 by thermodiffusion was studied chemically. $SiCl_4$ vapor was passed over steel plates (42 x 9 x 2 mm) placed in quartz tubes heated to 800-1200°C. Purified electrolytic hydrogen or purified argon was used as a carrier. The flask with $SiCl_4$ was placed into thermostat heated to 25°C. Elementary Si was introduced into the reaction tube so as to clarify the part played by Si during siliconizing. The experiments lasted for 3 hrs. The amount of $SiCl_4$ (1.3 liter) was calculated from the carrier gas amount passed through and the $SiCl_4$ vapor pressure at the corresponding temperature. Results: (1) silicon may penetrate into the steel owing to an exchange reaction between Fe and Si; (2) Si may directly penetrate without Fe substitution. Heating of a steel plate with $SiCl_4$ at 1000° for 3 hrs caused a loss in weight of 0.4042 g and penetration of 0.1321 g Si. Since the condensate in the tube consists of ferrous chloride

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S/078/62/007/004/003/016
B110/B101

Interaction of iron with $SiCl_4$

only and chlorine is absent in the waste gases, the reaction $SiCl_4 + 2$ Fe $= 2FeCl_2 + Si$ takes place. When heating at Pt plate at $1200^{\circ}C$ for 3 hrs in the $SiCl_4-H_2$ stream, a weight increase occurred owing to direct Si penetration resulting from $SiCl_4$ reduction by atomic hydrogen formed in the Pt: $SiCl_4 + 4H \rightleftharpoons Si + 4HCl$. Fe samples coated with electrolytic iron were heated for 3 hrs at $900^{\circ}C$ in the $SiCl_4$ stream. Since a large weight increase took place, the electrolytic hydrogen effected the direct Si penetration without Fe substitution. The Si percentage in the sample resulting from the exchange reaction is: $C_1 = (A-k) \cdot 100/3.97A$, that of the Si amount penetrated directly without Fe substitution is: $C_2 = (k+A \cdot 2.97) \cdot 100/3.97A$, where A is the total amount of penetrated Si and k is the change in weight. Maximum loss in weight produced siliconizing in the presence of inert gas and silicon. Substitution of Ar by H_2 lowered the contribution of the exchange reaction and the loss in weight. Introduction of Si into the reaction tube lowered the loss in weight considerably by increasing the directly penetrating Si amount. Substitution of hydrogen by argon effects an increase of the Si penetrating by exchange. Pure $SiCl_4$ without diluting gas causes only exchange reaction. Ar and Si admixture effects direct Si penetration,

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Interaction of iron with $SiCl_4$

S/078/62/007/004/003/016
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since no reduction of $SiCl_4$ by H_2 takes place. Presumably the reaction proceeds as follows: $SiCl_4 + Si \rightleftharpoons 2SiCl_2$, $2SiCl_2 \rightleftharpoons SiCl_4 + Si$. The interface (Fe surface) acts here as a catalyst. The separated Si diffuse into the iron. Temperature increase always causes an increase of the Si penetrating by exchange, which may be attributed to an increase of $FeCl_2$ volatility and of the diffusion rate of elementary Si in Fe. The decrease of the directly penetrating Si with increasing temperature is explained by the decrease of hydrogen solubility in Fe. Maximum Si saturation of the siliconized layer was found in H_2 atmosphere in the presence of Si. Heating of samples at 800-1200°C for 3 hrs in $SiCl_4$-H_2 atmosphere

in the presence of Si produced 14-16% saturation, sometimes 21%, in the absence of Si, 11-13.5%. Substitution of H_2 by Ar lowered the saturation of the layer to 8-11%. There are 5 figures and 1 table.

SUBMITTED: March 20, 1961

Card 3/3

TUNINA, L., yurist

    Clearly, intelligibly, correctly. Izobr.i rats no.10:38
    O '62.   (MIRA 15:9)
                   (Technological innovations)

TUNINA, M.I.; KLYUCHNIKOV, N.G.

Reaction of iron with silicon tetrachloride. Zhur.neorg.khim.
7 no.4:743-748 Ap '62.   (MIRA 15:4)
                        (Iron) (Silicon chlorides)

LATYPOV, Z. Z.; KUPRIYANOV, S. Ye.; TUNITSKIY, N. N.

Ionizing collisions of electrons with ions and atoms. Zhur.
eksp, i teor. fiz. 46 no. 3:833-839 Mr '64.   (MIRA 17:5)

1. Fiziko-khimicheskiy institut imeni Karpova.

65. Effect of Ionizing Radiation on Alkyl Halides Investigated

"Ionization and Dissociation of Some Halogen Derivatives of Hydrocarbons Under the Action of Electrons of Different Energy," by N. N. Tuninskiy, S. Ye. Kupriyanov, and M. V. Tikhomirov, Sbornik Rabot po Radiatsionoy Khimii (Collection of Papers on Radiation Chemistry), Moscow, Academy of Sciences USSR, 1955, pp 223-240 (from Referativnyy Zhurnal -- Khimiya, No 1, 10 Jan 57, Abstract No 470, by Ye. Frankevich)

"Investigation of the processes of ionization and dissociation of halogen derivatives of hydrocarbons was conducted on a mass spectrometer MS-1 supplemented by (1) an automatic expansion of the mass spectra, (2) an automatic recording of the mass spectra, and (3) an arrangement whereby the substance under investigation was projected onto the ion source. The mass spectra of CH_4, CH_3Cl, CH_2Cl_2, $CHCl_3$, CCl_4, CH_3Br, and CH_3I were taken at electron energies amounting to 100 electron-volts. It was found that, as the number of halogen atoms in the molecule increases, the maximum of the intensity of ionic currents is displaced from molecular ions to ions formed by the detachment of one atom. In other words, dissociation begins to predominate over ionization. The anomalous ions which are formed and some secondary processes which follow ionization and dissociation have been investigated; the formation of H_2X^+ was established by observing the mass spectra of some halogen derivatives of

methane. The dependence of the type of ionization and dissociation of molecules of $CH_3 I$, $C_2 H_2 Cl_4$, $CH_3 Br$, and $CH_3 Cl$ on the energy of electrons up to 1,000 electron-volts was investigated. It was shown that, as the energy of the ionizing electrons increases, the mass spectra are impoverished in splinter ions." (U)

TUNIS, Ya.; SOROCHINSKAYA, V.P.

Some data on the chemicopharmaceutical industry of Czechoslovakia.
Med. prom. 11 no.3:61-62 Mr '57   (MLRA 10:4)
        (CZECHOSLOVAKIA--CHEMISTRY, MEDICAL AND PHARMACEUTICAL)

TUNISTKI, N. N.

Diffusion Processes Under Conditions of Natural Turbulence.

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TUNITSKAYA, V. F.

21 Jul 53

USSR/Physics – Phospors, Ca-S-Bi

"Origin of Separate Glowing Bands of Ca-S-Bi Phosphors," V. F. Tunitskaya, Phys Inst im Lebedev, Acad Sci USSR

DAN SSSR, Vol 91, No 3, pp 507-510

Attempts to clarify, among controversial data, bands belonging to Bi and the origin of each band. Concludes that Bi emits only one line at 450 mu max. Work was supervised by Prof. V. L Levshin. Presented by Acad A. A. Lebedev, 21 May 53.

262T83

Podobedin, G. P.

Dissertation: "The Effect of the Interaction of Activators on the Luminescent Character of CaS-MnBi-Phosphors." Cand Phys-Math Sci, Physics Inst, Acad Sci USSR, Moscow, 1954. Referativnyy Zhurnal-Khimiya, Moscow, No 8, Apr 54.

SO: SUM 284, 26 Nov 1954.

TUNLISKAYA, V. F.

Tunitskaya, V F

Effect of interaction of activators on luminescent properties of CaS-Bi,Mn phosphors. V. F. Tunitskaya. Trudy, Fiz. Inst., Akad. Nauk S.S.S.R., Fiz. Inst. im. P. N. Lebedev 7, 109-58(1956). The Bi activator in CaS phosphor gives only one emission band with a max. at 450 mu. All other bands commonly assigned to this activator ar-

... 20,615 cm... coincides with either of the Bi emission band at room temp., the second transition, less probable (20 746 cm.⁻¹, is practically absent at room temp. and its presence is detected only by the expansion of the spectrum of the CaS-Bi phosphor according to Gauss' law. In all

sensitization is related to the transfer of energy from Bi to Mn under the conditions (1) the transition occurs at temps. as low as −166°; (2) the abs. amt. of the transferred energy increased with an increase in temp.; an increase in the intensity of ...

Tunitskaya, V.F.

AUTHORS: Levshin, V.L. and Tunitskaya, V. F.   51-3-10/24

TITLE: Effect of the wavelength of the exciting light and of the nature of trapping levels of ZnS:Cu:Co phosphors on the filling of traps. (Vliyaniye dliny volny vozbuzhdayushchego sveta i prirody urovney zakhvata fosforov ZnS-Cu, Co na ikh zapolneniye).

PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy), 1957, Vol.2, No.3, pp.350-354 (U.S.S.R.)

ABSTRACT: Four ZnS phosphors were studied:- I - ZnS:Zn heated in air (2 groups of trapping levels), II - ZnS: Cu (3 groups), III - ZnS:Cu:Co (3 groups and some deep levels) and IV - ZnS:Cu heated in H_2S (2 shallow groups). They were excited at -180 C with light of 312 mµ (absorption band of ZnS), 366 mµ (where ZnS absorption decreases) and 436 mµ (Cu activator absorption). The emission intensities were recorded on heating from -180 C to about +150 C. Maximum intensities occurred for 366 mµ excitation. The filling of the trapping increased with the duration of the excitation up to a certain saturation value. In ZnS:Cu (heated in H_2S) only the shallow levels are filled; in the phosphors II and III the deep levels are filled first and then the shallow ones. The temperature-intensity curves depend strongly on

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Effect of the wavelength of the exciting light and of
the nature of trapping levels of ZnS:Cu:Co phosphors
on the filling of traps. (Cont.)   51-3-10/24

the wavelength of the exciting light, i.e. the trapping levels
are quite differently filled by different wavelengths.
In ZnS:Cu:Co 15 minute action of 366 mμ light fills both
shallow and deep levels; successive action of 336 mμ and
436 mμ (15 minutes each) strongly empties the shallow levels
and partly the deeper ones.   Quenching action of 0.8 μ and
1.3 μ light (the latter 5 times more intense than 0.8 μ) was
studied.   It was found that the 0.8 μ quenching was much
stronger. In ZnS:Cu:Co irradiation with 0.8 μ emptied the
low-temperature (shallow) levels but some of the electrons
were transferred to the high-temperature (deep) levels. This
indicates that excitation with 366 mμ did not fill these deep
levels completely. Further work showed that when the shallow
levels were previously emptied by heating then 0.8 μ light
Card 2/2 decreased the filling of the deep levels in ZnS:Cu:Co.
There are 5 figures and 6 references, 3 of which are Slavic.
SUBMITTED: August 22, 1956.
ASSOCIATION: Lebedev Physical Institute Ac.Sc. U.S.S.R.
      (Fizicheskiy Institut im. Lebeleva AN SSSR).
AVAILABLE:

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SUBJECT: USSR/Luminescence   48-5-28/56

AUTHORS: Levshin V. L. and Tunitskaya V. F.

TITLE: Nature of Localization levels in ZnS-Cu, Co-Phosphors and Their
             Filling under Various Excitation Conditions (Priroda urovney
             lokalizatsii ZnS-Cu, Co-fosforov i ikh zapolneniye v raznykh
             usloviyakh vozbuzhdeniya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957,
             Vol 21, #5, pp 695-696 (USSR)

ABSTRACT: The magnitude and distribution of the light-sum of ZnS-Cu, Co
             phosphors over the levels of various nature and depth, and
             their dependence on excitation time and wavelength of exciting
             light were investigated. It was established that:
                 1. The probability of filling one or another group of
             levels for a given wavelength of exciting light depends not
             only on the depth of the levels but also on their origin.
                 2. The wavelength of exciting light affects strongly the
             distribution of electrons over the levels of different depths.
                 3. No transitions of electrons from the shallow levels into
Card 1/2   deeper ones were observed during thermal de-luminescence, when

48-7-28/56

TITLE: Nature of Localization levels in ZnS-Cu, Co-Phosphors and Their Filling under Various Excitation Conditions (Priroda urovney lokalizatsii ZnS-Cu, Co-fosforov i ikh zapolneniye v raznykh usloviyakh vozbuzhdeniya)

shallow levels were mainly filled but there were many unfilled deeper levels.

4. The radiation with longer wavelengths affects more those electrons which are in the shallow levels. Some part of optically liberated electrons are transferred thereby from the shallow levels to deeper ones.

The report was followed by a short discussion.

Two Russian references are cited.

INSTITUTION: Physical Institute im. Lebedev of the USSR Academy of Sciences.

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

Card 2/2